

Application S/N 10/814,887
Amendment Dated: August 16, 2005
Response to Office Action dated: May 16, 2005

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REMARKS/ARGUMENTS

Claims 1-16 are pending in the application, as new claims 15 and 16 have been added. In the Office Action, claims 1-7 were objected to because the Examiner believes that the word "above" appears to mean "below." In addition, claims 1, 3-5, 8 and 10-12 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,928,307 to Lynn (Lynn). Claims 7 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lynn in view of U.S. Patent No. 6,041,126 to Terai, et al. (Terai). Finally, claims 2, 6, 9 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lynn in view of U.S. Patent No. 5,515,432 to Rasmusson (Rasmusson).

A brief summary of the Lynn and Rasmusson references may be helpful here. Lynn describes a system that includes a variable gain amplifier for amplifying a voice input signal based on the application of a variable control voltage. A driver increases the power gain of the amplified input signal to provide a power-boostered output signal, which can be output from a transducer. The output signal can also be applied to a peak-detecting comparator and to a threshold reset timer. The comparator can generate digital pulses to an attack/decay timer when the output signal goes above a threshold, and the reset timer can switch the compression threshold of the comparator to a lower level, where it can stay until the system returns to its normal mode of operation. Lynn does not discuss the concept of using such a circuit to supplement the ability of a processor to prevent an acoustic output signal from reaching a predetermined safety threshold.

Rasmusson describes a method and system for selectively compressing the signal applied to a loudspeaker based upon the volume setting for the sound level to be

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produced by the loudspeaker. This method improves the intelligibility of human speech produced by a loudspeaker at high volume levels. Compression of the signal to the loudspeaker prevents the loudspeaker from overloading. Rasmusson does not disclose an analog safety circuit that serves as a supplement to the ability of a processor to prevent an acoustic output signal from reaching a predetermined safety threshold.

Independent claims 1 and 8 have been amended to clarify that the analog safety circuit serves as a supplement to the ability of a processor to prevent an acoustic output signal from reaching a predetermined safety threshold. Such a feature is important because the processor may contain flaws in its software that will interfere with the ability of the processor to properly manage the acoustic output signal. This supplemental aspect of the analog safety circuit will prevent a user's hearing from being damaged. Dependent claims 2 and 9 have also been amended to clarify that the processor can perform adjustments to account for the acoustic output signal reaching the predetermined safety threshold. Support for these amendments can be found in FIG. 1 and on page 11, line 14 to page 12, line 3. No new matter has been added in view of either amendment.

As noted above, Lynn does not describe, show, mention, teach or suggest using an analog safety circuit as a supplement to the ability of a processor to prevent an acoustic output signal from reaching and exceeding a predetermined safety threshold. In addition, Rasmussen does not even disclose an analog safety circuit. Applicants also contend that Lynn and Rasmussen in combination do not disclose the present invention because Rasmusson does not teach that the digital signal processor in Rasmusson has the ability to prevent an acoustic output signal from exceeding a safety threshold. Moreover, Applicants contend that there is motivation or suggestion to combine

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Rasmusson and Lynn because Rasmusson mentions absolutely nothing about protecting a user's hearing from damage (i.e., preventing an acoustic output signal from reaching and exceeding a predetermined safety threshold). Rasmusson is concerned merely with preventing a speaker from being driven too high to help keep intelligible the human voices that are output from the speaker. There would be no motivation to add an analog safety circuit to the system in Rasmusson because designers focused on improving voice quality would not deem it necessary to have such a supplemental protective feature.

The process of the processor performing adjustments in response to being signaled from the analog safety circuit are not disclosed by Lynn or Rasmusson, or a combination thereof, for the reasons listed above, as well. Also, Applicants note that the term "above" is accurately recited in claims 1 and 8. This feature allows the audio device that includes the analog safety circuit and the processor to have the capability of driving the acoustic output signal to a maximum sound pressure level across the entire audio frequency band of the audio device (the frequency response curve can be close to the predetermined safety threshold – see FIG. 5 and related discussion on pages 14 - 16). Finally, new claims 15 and 16 have been added that recite the limitation that the audio device includes an actively-equalized earpiece circuit. As is known in the art, the actively-equalized earpiece circuit may equalize the frequency response of an audio output signal in response to movement of an audio device towards and away from a user's ear. Support for the new claims can be found on page 14, lines 18-21. Neither Lynn nor Rasmussen nor any of the other prior art references disclose such a concept.

In view of the above, Applicants believe that independent claims 1 and 8 are patentable over the prior art. Applicant also believes that dependent claims 2 and 9 and

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new dependent claims 15 and 16 are also patentable over the prior art. Applicants further believe that the other claims that depend from independent claims 1 and 8 are patentable, both based on their dependencies on the independent claims and their patentability on their own. Reconsideration and withdrawal of the rejection of the claims is respectfully requested. Passing of this case is now believed to be in order, and a Notice of Allowance is earnestly solicited.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

In the event that the Examiner deems the present application non-allowable, it is requested that the Examiner telephone the Applicants' attorney or agent at the number indicated below so that the prosecution of the present case may be advanced by the clarification of any continuing rejection.

The Commissioner is hereby authorized to charge any necessary fee, or credit any overpayment, to Motorola, Inc. Deposit Account No. 50-2117.

Respectfully submitted,

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